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Rice

OUTLOOK & SITUATION

NOTICE

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Table 1--Rice, (rough equivalent): Supply, disappearance, area, and price 1/

Item	1978/79	1979/80	1980/81 (prel.)	1981/82 (Proj.)
<u>Million cwt</u>				
<u>Supply</u>				
Beginning stocks, August 1	27.4	31.6	25.7	16.5
Production	133.2	131.9	146.2	185.4
Total <u>2/</u>	160.7	163.6	172.1	202.0
<u>Domestic disappearance</u>				
Food <u>3/</u>	33.7	33.2	38.4	39.5
Seed	4.3	4.8	5.1	5.0
Brewers use	11.2	11.2	11.0	12.0
Total	49.2	49.2	54.5	56.5 <u>±</u> 2
<u>Exports</u>	75.7	82.6	91.4	91.0 <u>±</u> 7
Total disappearance	124.9	131.8	145.9	147.5 <u>±</u> 8
Unaccounted for <u>4/</u>	+4.2	+6.1	+9.7	+3.5
<u>Ending stocks, July 31</u>	31.6	25.7	16.5	51.0 <u>±</u> 8
<u>Million acres</u>				
<u>Area</u>				
Planted	2.99	2.89	3.38	3.84
Harvested	2.97	2.87	3.31	3.80
Allotment	1.80	1.80	1.80	1.80
<u>Pounds per acre</u>				
Yield per harvested acre	4,484	4,599	4,413	4,873
<u>Dollars per cwt</u>				
<u>Prices</u>				
Received by farmers	8.16	10.50	12.80	9.25-10.25
Loan rate	6.40	6.79	7.12	8.01
Target rate	8.53	9.05	9.49	10.68
Parity price	15.40	17.10	19.00	20.80

1/ Consolidated supply and disappearance of rough and milled rice. Converted milled-rice data to a rough-rice basis using annually derived extraction rates as factors. 2/ Includes imports. 3/ Includes shipments to U.S. territories and rice for military food use. 4/ Results from losses in drying, storage, handling, and milling and errors in estimation.

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The next *Rice Situation* will be published in September 1982.

Summary

Record Rice Supplies Continue To Depress Prices

A bumper rice harvest of 185 million cwt in 1981 helped push total U.S. supplies above 200 million cwt for the first time. Supplies are up 30 million cwt from a year ago, and weak demand will likely hold the increase in disappearance under 2 million. Thus season-ending stocks are likely to increase to 51 million cwt, about triple a year earlier. Nearly one-third of the carryover is expected to be in Commodity Credit Corporation (CCC) inventory.

The average price during August-December was \$10.40 per cwt. So, with a \$10.68 target price, allotment holders received a deficiency payment of 28 cents per cwt. The average farm price for the marketing year is projected at \$9.25 to \$10.25 per cwt, compared with \$12.80 last year.

To help bring supply into closer balance with demand, USDA announced on January 29 a 15-percent acreage reduction program for 1982 rice. Only program participants will be eligible for the target price of \$10.85 and for CCC loans of \$8.14 per cwt. With current farm prices well below the 1982/83 target, widespread participation is expected. Furthermore, because the program announcement was not fully reflected in the planting intentions survey conducted around February 1, rice acreage could be slightly below the 3.6 million reported. However, with a large carryin, U.S. supplies could still

total around 200 million cwt next marketing year. So, unless there's a significant increase in total rice use next season, producers could see another year of weak prices.

Following 2 years of record sales to South Korea, U.S. medium-grain exports will drop dramatically this season, but total rice exports—projected at 91 million cwt, rough basis, (3 million metric tons, milled basis)—may about equal last year's record. Better-than-anticipated sales of long-grain rice to Iraq, Iran, and Nigeria and enlarged purchases of rough rice by Italy pushed U.S. exports above early expectations. As of March 11, shipments were only slightly below a year ago, but outstanding sales lagged by about 650,000 metric tons. About half of this season's outstanding sales to all destinations are for long grain. The weak export demand for medium grain will continue, despite anticipated South Korean purchases.

This season, domestic use—primarily for food, beer, and seed—is expected to be about 2 million cwt above last year's 54.5 million, with beer use up sharply.

World rice production for 1981/82 is forecast at 410 million metric tons, rough basis, about 14 million more than last year. Virtually all major exporters had excellent crops, as did some major importers—particularly Indonesia and South Korea. World rice trade is projected at 12 million tons in calendar 1982, about 1 million below last year's record.

Rice Situation

U.S. RICE SITUATION AND OUTLOOK FOR 1981/82

Record 1981 Acreage and Yield Boost Supplies

U.S. rice producers harvested 3.8 million acres of rice in 1981, up almost a half million from a year ago. The record acreage plus above-average weather resulted in a harvest of 185.4 million cwt, over 39 million above last year's crop and the largest ever for the United States. Although the carryin of 16.5 million was the lowest since 1975, the bumper harvest pushed total supplies to a record 202 million cwt.

Most of the 1981 acreage expansion occurred in the Northeast and Delta areas of Arkansas and the Delta area of Mississippi. These two States accounted for 357,000 acres, or 73 percent, of the 492,000-acre increase in total 1981 plantings. Arkansas alone had 260,000 acres, or 53 percent of the increase. With the exception of Texas, the other major rice-growing States registered increases, but in lesser magnitude.

In addition to the significant rise in acreage, yields also increased dramatically. The U.S. average yield of 4,873 pounds per acre was 155 greater than the previous record of 4,718 in 1971. The yield was also 460 pounds above last year's drought-stressed 4,413. California, with 605,000 harvested acres, had a phenomenal 7,200-pound average yield, and Texas, with 579,000 acres, had a 4,700-pound average yield. Yields in these areas were the primary forces behind the U.S. record.

Arkansas produced almost 70 million cwt, which accounted for almost 38 percent of the 1981 crop. Combined with California's 43.6 million cwt, the two turned out 61 percent of the U.S. total. Long-, medium-, and short-grain rice accounted for 60, 34, and 6 percent, respectively, of the 185.4-million-cwt total. Arkansas and Texas were the principal long-grain States, while California accounted for 54 percent of the medium grain and 88 percent of the short grain.

Domestic Use Up from Year Earlier

For the first 5 months of the marketing year (August-December), total domestic use (including beer and shipments to territories) was up 15 percent from a year ago. Shipments to territories, beer processors, and for food use all rose. However, during this period, the amount of rice milled dropped 5 percent. The worsening recession during the fall and high interest rates may have encouraged mills, wholesalers, processors, and retailers to reduce inventories, thus causing the disparity between domestic use and mill use. Also, civilian consumption—which accounts for about three-quarters of domestic use—is calculated as a residual. So, data discrepancies during the first 5 months of this season could be partially responsible for the 15-percent boost in domestic use.

August-December use of rice in beer brewing was up over 6 percent from the same period last year, even though total beer production was down. The increase is largely a result of the market-share growth of beers brewed with rice. Demand was probably also boosted by the drop in the price of brewers rice, which averaged \$8.78 per cwt during the first 4 months of 1981/82, compared with \$9.85 a year earlier. For this season, use of rice for beer brewing is currently forecast at 12 million cwt, up 1 million from last year.

August-December shipments to territories, particularly to Puerto Rico, are significantly above a year ago. If this trend continues, 1981/82 shipments to Puerto Rico could set a record. The sharp increase is primarily caused by the decline in the price of rice. Puerto Rico imports medium and short grains, and the milled prices of these types have dropped about a third since last August.

Virtually all of the short-grain shipments to Puerto Rico are from California, but medium grain comes from mills in both the South and in California. In the mid-1970's, about one-fourth of U.S. rice shipments to Puerto Rico originated from southern mills and three-fourths from California. Since then, the South has gained a larger share of the medium-grain market and has accounted for the bulk of Puerto Rico's medium-grain imports from the United States. By the late 1970's, the southern share of total U.S. shipments to Puerto Rico was up to about two-fifths.

Domestic rice disappearance includes planting seed, and for the 1982 crop, seed use is currently estimated at 5 million cwt, slightly down from last year because of the 15-percent acreage reduction program.

Total domestic disappearance—including food, beer, and seed use—is forecast at 56.5 million cwt, 2 million above 1980/81. With use for brewing likely to remain strong, food use during the rest of this season would have to drop from the August-December pace if the domestic use forecast is to be reached.

Exports About Keep Pace with Last Year, but Sales Lag

Total U.S. rice exports are projected at 3 million metric tons, milled basis (91 million cwt rough) in 1981/82. Shipments totaled 1.65 million tons by March 11, about 160,000 below last year. Outstanding sales were about 650,000 tons behind. Sharply reduced sales to South Korea account for virtually all of the shortfall.

Stronger sales in the Mideast and better-than-expected shipments to Africa, particularly Nigeria, and to Italy have improved the export outlook. Although shipments to Saudi Arabia are presently lagging behind a year ago, exports to Iraq and Iran are up dramatically. As of early March, total shipments and outstanding sales to these two countries were 294,000 metric tons, compared with less than 50,000 tons a year earlier. However, the jump in commitments is misleading. Last season's commit-

ments to Iran understated actual Iranian imports of U.S. rice, because many sales were registered to other countries. About 239,000 tons had already been shipped by March 11. In Africa, U.S. exports to Nigeria totaled 164,000 tons by early March, 66 percent above last year.

Almost all exports to Africa and the Mideast are long grain. Nigeria and Saudi Arabia import virtually all long-grained parboiled rice from this country, and Iran takes long grain. About half of this season's outstanding sales to all destinations are for long grain. Thus, this type should continue at good export pace in the months ahead.

Medium-grain exports have not done as well, mainly because of the sharp decline in medium-grain brown rice sales to South Korea. U.S. exports to South Korea are expected to total about 550,000 metric tons in 1981/82, down from over 1 million in 1980/81. South Korea has recently solicited offers for 370,000 metric tons of bulk medium-grain brown rice from California. However, even if this sale is concluded, delivery dates are for May-September 1982. Unless delivery dates are contracted for the earlier months, this sale may not do much to help this year's medium-grain supply/use situation.

As of December 1981, P.L. 480 allocations for fiscal 1982 were estimated at 262,000 tons, down from 379,000 last year. The next quarterly revision of allocation volume (based on allocation value), will likely be higher because of the drop in rice prices. Allocations for 1982 presently include 13 countries, with Peru and Liberia the major recipients. Generally, the majority of P.L. 480 exports are medium grain. Thus, the impact of reduced allocations has been felt mostly by the medium-grain market.

Stocks To Triple

With total supplies up about 30 million cwt this season and total use expected to rise less than 2 million, stocks of rough rice on August 1 are forecast at 51 million cwt—about triple last season's carryover of 16.5 million. Reflecting this prospective buildup, stocks on January 1, 1982, were 130 million cwt, the largest ever for that date.

Of the total rough rice on hand on January 1, 71 million were long, 53 million medium, and 6 million short. Stocks of long-grain rice were 60 percent of total supplies of this type, compared with 54 percent in January 1980. In contrast, stocks of medium grain were 77 percent of the total, compared with about 60 percent a year earlier. Short grain was the only type with stocks less than a year earlier.

Rice stocks by type, January 1, 1981-82

Type	Rough		Milled ¹		Total	
	1981	1982	1981	1982	1981	1982
<i>Million cwt.</i>						
Long	54.9	71.5	6.2	6.0	61.1	77.5
Medium	34.9	53.3	2.7	1.7	37.6	55.0
Short	6.3	5.7	.1	.5	6.4	6.2
Total	96.1	130.5	9.0	8.2	105.1	138.7

¹Rough equivalent.

California's total rough rice supply on January 1 was equivalent to 82 percent of its 1981/82 production, reflecting the lag in sales to South Korea. Louisiana was second to California, with an equivalent of 75 percent of its production still on hand. These two States are the largest medium-grain producers.

Farmers' reluctance to sell their rice at August-December prices accounts for the whopping 48.4 million cwt stored on farms on January 1, nearly double January 1981's 26.2 million. Arkansas farmers, with nearly 18 million, and Louisiana, with 11.5 million, accounted for 61 percent of the on-farm total.

Price Weakness Continues

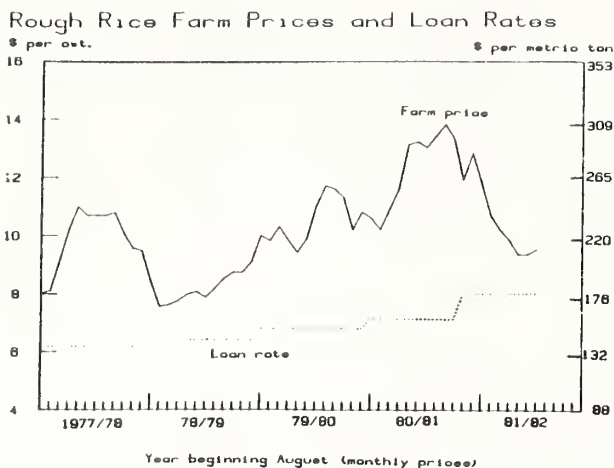
Record U.S. and foreign rice production and the resulting slowdown in world trade continue to pressure prices. The U.S. average price for rough rice dropped \$2.46 per cwt the first 5 months of 1981/82, from \$11.80 in last August to \$9.34 in December. This is the second greatest 5-month decline, exceeded only by the plunge from \$17.50 in June 1974 to \$11.30 in October that year. The U.S. average price for rough rice during August-December, at \$10.40 per cwt, was below the \$10.68 target price, making allotment holders eligible for a deficiency payment of 28 cents per cwt. Total payments are estimated at \$22 million.

Having received a season-average price of \$12.80 per cwt in 1980/81 (including a high of \$13.80 per cwt in April), many producers found it difficult to accept early-season offers of \$10 to \$12 per cwt. Consequently, record supplies of rice were stored on farms. Instead of the anticipated improvement, prices continued to drop, reaching a low of \$9.34 per cwt in December. For the season, rice prices are expected to average \$9.25 to \$10.25 per cwt, down sharply from last season's \$12.80.

The pressure of abundant foreign and U.S. rice supplies and reduced world trade has also been reflected in U.S.

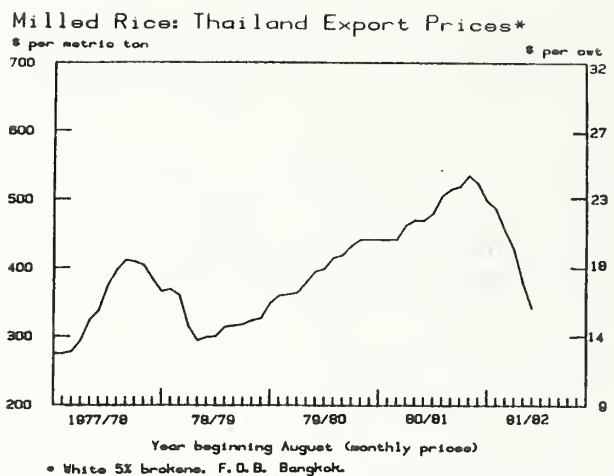
Rough rice: U.S. supply by type, August 1, 1980 and 1981

Item	1980				1981			
	Long	Medium	Short	Total	Long	Medium	Short	Total
<i>Million cwt.</i>								
Carryover	14.5	8.1	3.1	25.7	8.0	6.5	2.0	16.5
Production	86.9	51.4	7.9	146.2	111.3	62.6	11.5	185.4
Total supply	101.4	59.5	11.0	171.9	119.3	69.1	13.5	201.9



USDA

Neg. ERS 408-82 (3)



* White SX broken, F. O. B. Bangkok

USDA

Neg. ERS 91-A-82 (3)

milled-rice prices. Prices for U.S. No. 2 long and medium grain's f.o.b. southern mills, have declined by \$5 to \$9 per cwt since August. Prices for California medium- and short-grain rice have fallen \$10 to \$11 per cwt.

Prices for broken are sharply below year-earlier levels. Second heads averaged \$10.00 per cwt in February, 22 percent lower than a year ago. The average price for brewers rice is down from \$10 last May to \$7.60 in February.

Depressed Prices Increase CCC Loan Activity and Inventory

As of March 10, 1982, there were CCC loans outstanding on 24.9 million cwt of the 1981 crop, nearly 7 million more than the 17.7 million in early March 1981. Weak prices for rough rice and the hope of improvement later in the year triggered higher loan use. The large prospective carryout and the resultant low farm prices, which recently have been about the same or below the loan rate plus interest, are expected to cause about 15 million cwt to be forfeited to the CCC. Although the loan maturity date was extended to June 30 (from April 30), prices may not improve enough to close the gap between farm prices and the loan rate plus interest.

About 10.4 million cwt of the outstanding loans are in California, which has been hardest hit by the slowdown in medium-grain exports. Texas and Arkansas with 5.3 and 5.9 million cwt, respectively, account for most of the remainder.

U.S. OUTLOOK FOR 1982/83

Medium Grain To Dominate Beginning Stocks

Beginning 1982/83, rice stocks are likely to be around 51 million cwt. Since currently outstanding export sales are predominantly long grain, and because short grain at this point seems to be in a good supply/disappearance balance, over half of the carryover will likely be medium grain. If so, the carryin of this type would be 4 or 5 times greater than last year's 6.5 million cwt. Based on

current prices, as much as 15 million cwt could be taken over by the CCC, with the largest share being medium-grain rice. Should this occur, free stocks of medium grain would be considerably less, helping to ease the supply burden for this type.

Prospective Acreage Points To Large Supplies

Based on a survey taken around February 1, U.S. producers expressed intentions of planting 3.6 million acres of rice in 1982, of which 2.4 million would be long grain, 1.1 million medium, and 151,000 short. Although these intentions were expressed before the official announcement calling for a 15-percent acreage reduction program, the final planted acreage will depend on the extent of producers' participation in the program, the prices of rice and competing crops at planting time, and the size of the rice acreage base. However, even if final plantings are as low as 3.4 million acres, production from an area of this magnitude combined with a large carryin, would still push U.S. rice supplies beyond 200 million cwt for the second year in a row.

A main incentive to participate is the target price protection. A farmer must weigh the benefit of deficiency payments, should prices stay low through the fall, against the income lost by putting rice land into a conserving use. The larger the expected deficiency payment, the greater the incentive to participate. Eligibility for the CCC loan also requires participation. The loan is an incentive to participate because it provides the farmer an additional marketing outlet, while representing a price floor.

Few rice producers grow only rice. Consequently, expected net returns on alternative crops will also influence planting decisions. At this point, both soybean and cotton prices are weak, and this would have encouraged larger plantings of rice, particularly in the Southern States, if rice prices were not so weak. However, cotton has a target price that is well above current prices making cotton more attractive, but eligibility requires participation in a 15-percent acreage reduction program. Soybeans and cotton are higher risk crops than rice in terms

of their susceptibility to bad weather. Farmers looking for ways to reduce risk would be encouraged to plant rice in spite of the possibility of weak prices for the 1982 crop. Returns relative to costs may be better for rice than for alternative crops when all factors are taken into account.

Policies of lending agencies could have dampening effects on planting intentions. It is reported that some lending agencies are either requiring rice producers to participate in the 15-percent acreage reduction program before they will make them a crop loan, or else lending less to nonparticipating producers.

Supply/Use Prospects Cloud Price Outlook

With outstanding export sales lagging behind a year ago, and barring some unforeseen significant increase in exports, rice prices are expected to remain weak throughout 1981/82 and possibly into 1982/83. The rice futures market is signaling continued-low prices for rough rice in distant months.

In view of 1982 planting intentions and a carryover of over 50 million cwt, the price picture is not encouraging for 1982/83, unless disappearance improves significantly. The key is exports, and they will be determined by world rice production, particularly in major exporting and importing countries. Production shortfalls in any one or several of these countries could result in a sharp upturn in U.S. rice exports. However, any significant improvement in prices for 1982/83 hinges on exports being in the range of 5 to 10 percent above this season's expected level.

WORLD SITUATION AND OUTLOOK

World Rice Production Up in 1981/82

World rice production in 1981/82 set a record at 410 million tons, paddy basis, a 3.5-percent increase over last year.¹ Favorable weather was largely responsible for the increase, because planted area barely rose.

Among major foreign producers, Burma, Thailand, Indonesia, Pakistan, South Korea, and Japan had large percentage increases in output. China, the largest producer, had a 3-percent rise—almost 5 million tons. Only two of the fourteen major rice-producing countries had production declines—India and Bangladesh, which had a combined decrease of about 1 million tons. The two major rice importing countries in recent years—Indonesia and South Korea—each had sizable production increases, with Indonesia achieving a record and South Korea rebounding from last year's poor crop.

World rice consumption should just about equal production this year, allowing virtually no change in ending stocks. The expected stocks of 25 million tons (excluding stocks in the USSR and China) equal 9 percent of world use, about the same as a year ago. Although the level will likely be unchanged, the distribution of stocks will change this season. Japan and India, now holding the largest rice stocks in the world, are both in the process of drawing them down. The major producers, such as Thailand and Indonesia, will be accumulating stocks.

World rice trade in 1982 is expected to fall about 8 percent from the record 13 million tons shipped in 1981. With record production for many exporters and good crops in major importing countries, trade has slackened. In 1980 and 1981, Indonesia and South Korea alternated in taking more than 2 million tons each, and both countries combined took around 2.7 million tons in each year. However, combined imports by those two countries are expected to total only 1 million tons in 1982.

Major Exporters

THAILAND'S paddy production is expected to be a record 19.5 million tons, 1 million above last year's excellent crop. Good weather added to the 2-percent rise in planted area, and yields rose to almost 2 metric tons per hectare. The increase will probably be in the main crop, with the spring crop (harvested in July and August) at or below last year's level. Although Thailand's yields have risen in recent years, they are still substantially below most other major producing countries. Ground-soil moisture conditions are excellent for the spring crop, but poor prices may induce farmers to lower inputs.

Thai rice exports rose to 3 million tons in 1981 and are expected to stay at that level in 1982. Nevertheless, this is an increase over the 2.7 million tons sold in 1979 and 1980. However, actual 1981 exports were below earlier anticipations because of a slowdown in world import demand, especially in Indonesia. Thai rice should continue to be price competitive because government measures have reduced exporter costs. Thai prices in early February were down about 40 percent from last year because of sluggish world demand. The USSR should continue to be an important market, as well as Iran and Senegal. Sales also have been made to Malaysia, which took 237,000 tons from Thailand in 1981.

PAKISTAN'S rice production in 1981/82 equalled the record 4.9 million tons set in 1978/79. In the previous 2 years, area planted to high-yielding varieties fell as planters grew higher valued, less insect-prone, basmati rice. Higher price supports and a quality premium for high-yielding varieties contributed to increases in planted area and fertilizer use for the 1981/82 crop. Exports rose to 1.1 million tons in 1981, with Pakistan retaining its place as the world's third leading rice exporter. In 1982, sales are expected to fall slightly to 1 million tons.

BURMA'S rice production was a record 13.6 million tons in 1981/82, an increase of 40 percent above 1979/80. Good weather and favorable government policies allowed yields to rise, though planted area did not increase after the 10-percent expansion during the previous year. Currently almost half of the area is planted in high-yielding varieties, compared with one-sixth just 3 years ago. Exports are projected to reach 700,000 tons in 1982, down from 750,000 a year earlier.

CHINA'S rice production rose to 144 million tons this year, marginally above the 1979/80 record. Planted area has continued to fall, but yields have risen. China's yields are the third highest of all major rice exporters.

¹All production figures are on a paddy basis for the marketing year, and trade statistics are for milled rice in the calendar year.

Japan and the United States are first and second. China remains the world's leading producer, accounting for 35 percent of the total. Most of the production is consumed in China, so exports make up only about 1 percent. However, China's share of total world exports has varied from 5 to 15 percent in recent years. Exports fell from 1 million tons in 1979 to an estimated 600,000 tons in 1981. This year, they may rise slightly to 700,000 tons.

INDIA, the world's second largest rice producer, had an excellent crop in 1980/81. At almost 80 million tons, production was just below the 1978/79 record. In 1981/82, production fell marginally to 79.6 million tons because of inadequate September-October rainfall in some States, particularly West Bengal and Bihar. Planted area remained the same as last year but was below that of the record year. Thus, current yields are only slightly below those of 1978/79. Stocks are expected to fall by half a million tons, but at 6 million tons in 1981/82, they will remain large, accounting for almost one-quarter of the world total.

Indian rice exports are small relative to production, less than 2 percent of milled output in recent years. Rice exports rose sharply in recent years reaching 900,000 tons in 1981, with the Soviets taking over half a million. For 1982, however, total Indian exports are expected to fall to 650,000 tons.

JAPAN'S rice production rose 5 percent to 12.8 million tons in 1981/82, despite the continued decline in area. Bad weather had been responsible for the 18-percent production drop in 1980/81. In general, output is declining as a result of policy measures to reduce large rice stocks. For example, the Japanese Food Agency is encouraging the use of rice for feed. Because consumption continues to exceed production and exports remain strong, stocks have been drawn down from 6 million tons in 1979/80 to the less than 3 million forecast for the end of 1981/82. Exports rose sharply from the late 1970's to 776,000 tons in 1981. The bulk of that was brown rice to South Korea and Indonesia. For 1982, they are expected to reach only half that level largely because of decreased Korean and Indonesian demand.

Major Importers

SOUTH KOREAN rice production rose 13 percent to 7 million tons in 1981/82, despite damage from Typhoon Agnes. Output is back to the 1979/80 level, and the need for imported rice has diminished. South Korea was the world's second major rice importer in 1980 and the leading market in 1981, taking 2.2 million tons that year. However, it is expected that imports will drop to half a million tons in 1982. The bulk of purchases will likely be U.S. rice shipped during the summer. South Korea is again expected to be the leading market for U.S. rice in 1982.

INDONESIAN production rose by 9 percent to a record 32.6 million tons in 1981/82. In the preceding year, production had increased by 13 percent. This 6-million-ton jump in output since 1979/80 has allowed the Indonesians to curtail imports. Rice purchases fell from around 2 million tons in 1979 and 1980 to half a million in 1981. This year, imports may be about the same as last year and equal to those expected for some Middle Eastern countries. Indonesian imports in 1982 may again fall behind those of the European Community (EC) and the USSR. The United States is not expected to sell any rice to Indonesia this year because of the absence of P.L. 480 exports.

NIGERIAN production has continued to jump sharply, rising 37 percent in the last 2 years. Continued increases in consumption have necessitated large imports, which rose from 387,000 tons in 1980 to over 650,000 in 1981. For 1982, Nigeria is forecast to tie with Iran as the second largest world importer—at 600,000 tons. Nigeria should remain the second largest U.S. rice market, taking about half of their imports from this country.

Many MIDDLE EASTERN countries continue to dominate world rice imports. Trade with Iran, Saudi Arabia, and Iraq combined has risen by about 6 percent a year for the past 2 years. These three countries are expected to take over 1.5 million tons in 1982—13 percent of world rice imports. Their projected rankings as U.S. export markets in 1982 are: Saudi Arabia, the third largest; Iraq, fourth; and Iran, fifth. Their combined purchases of U.S. rice may come close to the total for South Korea and Nigeria. Among regions, the Middle East is expected to take the most U.S. rice in 1982, after running second to Asia during the past 2 years.

Other important world rice markets include the USSR and the EC. Soviet rice purchases may again reach 1 million tons, as they did in 1981, up sharply from earlier years. The rice comes largely from India as part of an oil-rice barter agreement and from Thailand as commercial sales. Rice production in the USSR fell by 14 percent from 1980/81, a year of area, yield, and production records for rice, even though other grains suffered.

Rice production in the EC fell again to 900,000 tons in 1981/82, and imports jumped 38 percent during 1981. In the last 5 months of 1981, total EC rice imports from the United States tripled over the same period in 1980. Reported August-December shipments of U.S. rice to Italy were 200,000 tons, compared with 30,000 a year earlier. Lower domestic rice production, higher internal prices, and the EC's inward processing scheme made imports attractive. However, a tightening of the conversion rate used to determine the volume of exports of milled rice in place of imported rough rice should lower purchases this year.

PARTICIPATION INCENTIVES AND SUPPLY EFFECTS OF THE 1982 RICE ACREAGE REDUCTION PROGRAM

by

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ABSTRACT: Rice producers must plant no more than 85 percent of the rice base established for their farm to be eligible for 1982 program benefits. This article examines factors affecting participation in the acreage reduction program. A method for analyzing the program effects on U.S. rice acreage response is explained.

KEYWORDS: Rice, acreage reduction program, participation, acreage response curve

The large 1981 crop of 185 million cwt and only a slight increase in total use from a year ago are likely to cause rice stocks on August 1 to reach a record 51 million cwt. This season's supply excess relative to demand has lowered prices and dampened prospects for 1982/83. To bring supply into better balance with demand, USDA announced a voluntary 15-percent acreage reduction program for 1982 rice.

To be eligible for deficiency payments and CCC non-recourse loans on the 1982 rice crop, producers are required to participate in the program. Deficiency payments will be made if the national average farm price during the first 5 months of the 1982/83 marketing year (August-December) is less than the target price of \$10.85 per cwt. The payment rate cannot exceed the difference between the target price and the national average loan rate of \$8.14 per cwt.

Program Requirements

Participants must reduce 1982 rice plantings by at least 15 percent from an established rice base, devoting the reduced acreage to conservation uses. Generally, a farm's acreage base is either the 1981 planted acreage or the average of 1980 and 1981, whichever is greater.

Here is an example of how the program works. A farmer with a base of 100 acres must plant no more than 85 acres of rice. The 15-acre reduction (17.65 percent of the 85 acres permitted) must be devoted to a conservation use. If the farmer plants less than 85 acres, fewer acres have to be devoted to conservation. For example, if only 50 acres are planted, only 8.8 acres (17.65 percent of 50) have to be idled.

The land in conservation uses must be eligible cropland, must be protected from erosion, and must not be mechanically harvested. Also, grazing is not permitted on this acreage during the 6 principal growing months.

Neither offsetting nor cross compliance is required. So, farmers who operate more than one farm are not required to participate on all of them to get benefits on participating farms. Also, participation in the rice pro-

gram is not necessary to qualify for benefits from other crop programs.

Combined payments from the rice and other farm programs, except payments for disaster, are limited to \$50,000 per person per year. If a participant's projected 1982 deficiency payments exceed the limit, all the reduced acres will not have to be put in conserving uses. However, the farm's rice acreage cannot exceed 85 percent of the rice base.

Program Participation

The decision to participate in an acreage reduction program is complex. It requires farmers to weigh potential benefits from the program against the net revenue they expect to lose by taking land out of production. Many benefits gained through participation are difficult to quantify—the value of the loan program, for example.

The most measurable incentive for participation is probably the expected deficiency payment. Consider the example in table 1 of a rice producer with a 100-acre rice base who participates in the program. Basic assumptions for the table are:

- *85 acres are planted to rice—the maximum permitted;
- *expected yield is 45 cwt an acre on the 85 acres, and the estimated selling price is \$9.85 per cwt;
- *program payment yield is also assumed to be 45 cwt an acre. This yield is established by ASCS for each farm and is based on the farm's average yield for the preceding 3 years, adjusted for abnormal yields;
- *the farm price for the first 5 months of 1982/83 is \$9.85 per cwt, triggering a deficiency payment rate of \$1.00 per cwt;
- *variable production costs for rice are \$305 an acre;
- *cover-crop costs are \$20 an acre for the 15 idled acres.

The participating farm has receipts from two sources—cash sales and deficiency payments. Costs include variable costs on land planted in rice and cover-

Table 1--Rice returns per 100 acres of base

	Participant		Nonparticipant	
INCOME				
1 Acres harvested	85		100	
2 Yield/acre (cwt)	45		44	
3 Production (cwt)	3,825		4,400	
4 Average price (\$/cwt)	x9.85	10.25	x9.85	10.25
5 Subtotal income (\$)	37,676.25	(39,206.25)	43,340	(45,100)
6 Payment yield/acre (cwt)	45		0	
7 Acres harvested	85		0	
8 Production for payment (cwt)	3,825		0	
9 Deficiency payment rate (\$/cwt)	x1.00	.60	0	
10 Total payments (\$)	3,825	(2,295)	0	
11 Gross income: (5+10), (\$)	41,501.25	(41,501.25)	43,340	(45,100)
EXPENSES				
12 Harvested acres	85		100	
13 Variable costs/acre (\$)	x305		x305	
14 Total variable cost (\$)	25,925	(25,925)	30,500	(30,500)
15 Reduced acres	15		0	
16 Cost/acre (\$)	x20		0	
17 Total conservation cost (\$)	300	(300)	0	
18 Total variable costs (14+17), (\$)	26,225	(26,225)	30,500	(30,500)
19 Net return (11-18), (\$)	15,276.25	(15,276.25)	12,840	(14,600)

crop costs on conserving acres. There's no need to consider the farm's fixed costs, because they are the same regardless of whether the farm participates.

As table 1 shows (item 19), the participating farm nets \$15,276.25 above variable costs.

Nonparticipation

Assume that the same producer decides not to participate. By not idling land, all 100 acres can be planted in rice. Also, the producer has no cover-crop costs.

However, by not participating, the producer faces some offsetting factors:

*The additional acres planted are assumed to include marginal land, so the average yield on 100 acres is slightly lower than the average on 85 acres; and

*the nonparticipant foregoes possible deficiency payments.

The table shows the producer's net returns when not participating are \$12,840 or \$2,436.25 below returns when participating. Obviously, compliance benefits this example farm when prices are low.

Incentives Under Higher Prices

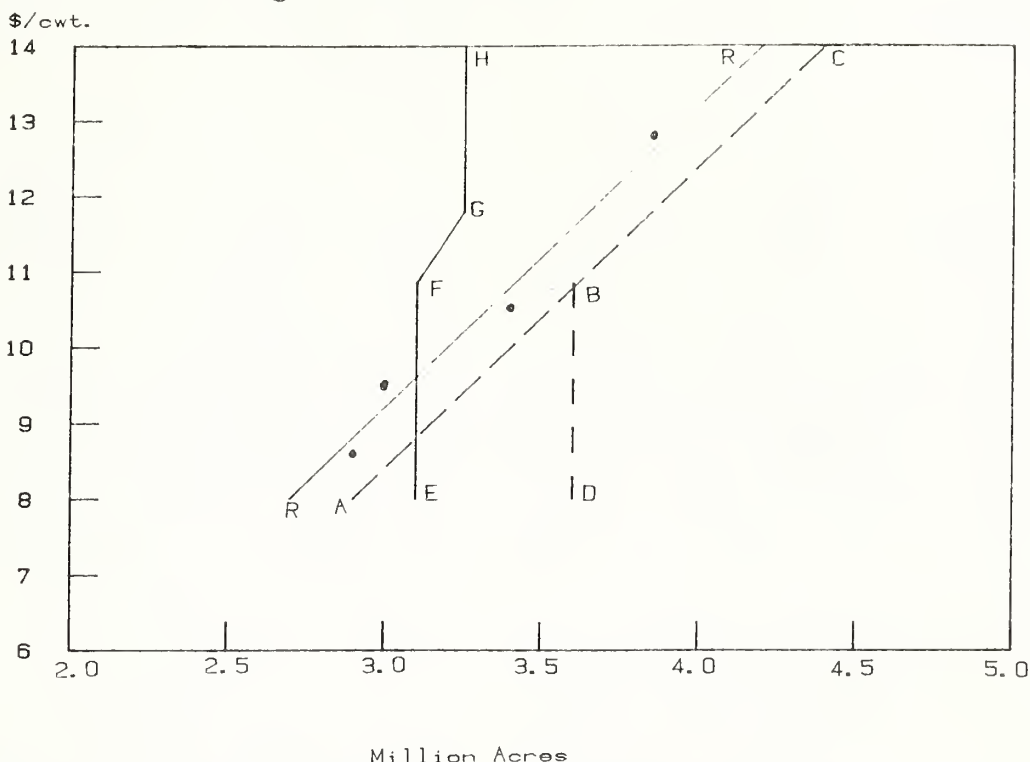
In the example, the average farm price next fall is assumed to be \$9.85 per cwt. This price triggers deficiency payments at the rate of \$1.00 per cwt, which makes participation attractive. But, what happens if a higher price is expected and, as a result, lower deficiency payments?

A price of \$10.25 per cwt raises returns from nonparticipation almost to the level of returns from participation—check the table again, noting the income and cost figures in parentheses. Despite the higher price, deficiency payments still make participation the better alternative.

There is a price at which net returns from nonparticipation equal those from participation. An expected cash price below the "equalizing" price suggests participation is the more profitable option; an expected price above it points toward nonparticipation.

One can find the equalizing price by gradually changing the cash price and deficiency payment and reworking the table. Alternatively, an algebraic formula may be derived by setting returns under participation equal to

Rice Acreage Response



those under nonparticipation. Using the data in the table for the \$9.85 expected price, the equalizing price—call it EP—is found using the following formula:

$$\begin{aligned} EP &= 9.85 + \frac{\$15,276.25 - \$12,840}{4400 + 3825 - 3825} \\ &= \$10.40 \text{ per cwt} \end{aligned}$$

To identify the data in the formula, see items 3, 4, 8, and 19 in the table. The denominator is the nonparticipant's production (item 3) plus production for payment (item 8) less the participant's production (item 3).

Therefore, if the example grower expected a price less than \$10.40 per cwt, participation would be more profitable. An expected price above \$10.40 would make nonparticipation more profitable. The equalizing price in relation to expected new-crop prices is important because it provides analysts a clue to the extent of participation in the program. While analysts use aggregate data in estimating the EP, farmers can find the equalizing price for their farm by substituting their own estimates for the example values.

Acreage Response

Consider the U.S. rice acreage response curve, RR, in Figure 1. The curve, drawn through price and acreage combinations for 1978-81, indicates that rice area changes about 250,000 acres for a \$1 per cwt change in the expected farm price. The previous season's farm price is used as the expected price. For example, for the 1979/80 crop, farm prices averaged \$10.50 per cwt and

3.38 million acres were planted in 1980. Higher prices in 1980/81—\$12.80 per cwt—led to an increase in area in 1981, to 3.84 million acres.

The curve RR gives an elasticity of U.S. rice acreage response with respect to the previous year's farm price of about 0.8. That is, a 10-percent change in price in one year cause farmers to change plantings by 8 percent in the following year. Because of the more market-oriented farm programs beginning in the mid-1970's, rice acreage has been more responsive in recent years to changes in farm prices. As expected, the price elasticity of 0.8 is higher than those estimated using many years of data. One such study (reference 1) estimated an elasticity of about 0.5.

1982 Acreage Response

The rice acreage response curve for 1982 would lie to the right of the 1981 curve, reflecting lower prices of competing crops, such as soybeans. We were unable to estimate or reference a usable response curve that incorporated competing crop prices. A rough measure of the shift in RR from 1981 to 1982 is the difference between the February planting intentions (3.62 million acres) and the acreage indicated by RR at the target price (3.4 million acres). The curve ABC is thus drawn 220,000 acres to the right of RR. The target price for 1982/83 was used as the expected price because it is well above the anticipated farm price.

Now suppose there were no acreage reduction program. In that case, all farmers would be eligible for target protection regardless of how much they planted. At expected prices above \$10.85 per cwt, the target price is not a factor, and plantings are indicated by segment BC. How-

ever, expected prices below \$10.85 imply that farmers expect deficiency payments to provide them with the equivalent of \$10.85 per cwt, no matter how low their actual selling price is. Thus, plantings would be at the level indicated by the target price. So, the complete curve for 1982 with no acreage reduction program is DBC.

A curve depicting 100-percent participation in the acreage reduction program may be derived several ways. Part of the cost of planting rice is the opportunity cost: the net return that could have been earned by planting an alternative crop. As the net return on a competing crop rises, the acreage response curve, such as ABC, shifts left. The provisions of an acreage reduction program may be interpreted as an increase in the opportunity cost for participants. For example, for every acre of rice planted, .1765 acre of land must be idled. So, for every acre of rice planted, the opportunity cost rises by 17.65 percent. This change in the opportunity cost could have been used to determine the location of the acreage response curve under 100-percent participation, if the authors had found a usable estimated curve for U.S. rice acreage that contained opportunity cost variables.

Curve EFGH in figure 1 is an alternative derivation of an acreage response curve under full participation. Curve DBC shows the amount of land farmers would be willing to allocate to rice at alternative expected prices with target price protection. Segment EFG is 85 percent of DBC at each price, so plantings indicated by EFG, plus idled land, total the same amount of land allocated to rice as indicated by DBC. The assumption that farmers

allocate a fixed total amount of land to rice (planted or planted plus idled) at a given price is probably not strictly correct, so the derivation of EFG must be considered a rough approximation.

Under full participation in the acreage reduction program, maximum plantings would be 85 percent of the U.S. acreage base for rice. Although it depends on individual farms, the U.S. base may be approximated by using 3.85 million acres, the amount planted in 1981. Thus, maximum plantings are 3.27 million acres—segment GH. The full curve for participants is EFGH.

Using the target price as the expected farm price for participants and \$9.75 as the expected price for nonparticipants, curves EFGH and ABC suggest 1982 rice area could be in the range of 3.1 to 3.4 million acres, depending upon participation in the acreage reduction program. Two factors point to this level of acreage begin somewhat low: first, our method of shifting the curve to account for opportunity costs probably places EFGH too far to the left; second, the response curve for nonparticipants is probably steeper than ABC, meaning they would not cut acreage in 1982 as sharply as suggested by ABC. At any rate, 1982 acreage is likely to be below the February intentions of 3.62 million.

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REGIONAL ADJUSTMENTS AND REGIONAL COMPETITIVE ADVANTAGES IN U.S. RICE PRODUCTION

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ABSTRACT: U.S. rice acreage expanded from 2.2 million acres in 1973 to 3.8 million in 1981. Dramatic expansion occurred in some regions, while very little took place in others. Factors, such as the supply of irrigation water, changes in cost of production or returns, and shifts in yield, affected this pattern.

KEYWORDS: Rice, regional adjustments, comparative advantage, costs, returns.

Introduction

In response to the lifting of marketing quota restrictions in 1974 and the implementation of the target price program in 1976, U.S. rice acreage expanded from 2.2 million acres in 1973 to 3.8 million acres in 1981 (table 1). Dramatic increases occurred in some rice-growing areas, while very little change took place in others. From 1973 to 1981, rice acreages were up nearly fivefold in the Mississippi River Delta, over threefold in northeast Arkansas, and nearly double in the Grand Prairie, Arkansas. However, during the same period, rice

acreage rose only 51 percent in California, increased 5 percent in Texas, and declined slightly in southwest Louisiana.

The gains in one region over another are related to several factors. Among the most important are: (1) physical restraints, (2) available irrigation water, (3) average yields, and (4) returns above costs. Advantages in one or more of these factors can lead to a significant difference in the rate of area expansion among regions. A description of the major factors influencing expansion in each U.S. rice-producing region provides insights for the uneven growth that occurred since 1973.

Table 1—Estimated rice area

Regions	Cropland			Rice area harvested ¹		
	Total	Suited for rice	Potential rice acreage ²	1973	1981	1981 as a percent of 1973
			1,000 acres			Percent
Grand Prairie, Arkansas	533	431	³ 200	190	329	173
Northeast Arkansas	1,806	1,355	668	243	814	335
Mississippi River Delta	6,888	3,418	2,112	190	924	486
Southwest Louisiana	1,794	1,794	897	597	553	93
Coast Prairie, Texas ⁴	2,550	2,430	596	549	579	105
California	⁵ 661	⁵ 661	⁵ 503	401	605	151
Total	14,232	10,069	4,976	2,170	3,804	175

¹Total harvested acreage based on Statistical Reporting Service, USDA data. Year refers to August 1 through July 31. ²Approximate acreage that could be grown annually after taking into account limitations imposed by available water for irrigation and agronomic factors associated with rotations. These estimates were made in the mid-sixties but have been adjusted for changes that have occurred since then. The Delta includes estimates for land currently in noncropland that would need clearing before use as rice land. This land (667,000 acres) is in Northeast Louisiana. ³Current plantings exceed the indicated potential acreage and continue to overtax the developed water facilities serving the area. ⁴Farm practices and costs vary significantly between the Upper and Lower Coast counties. ⁵Excludes the San Joaquin Valley, which holds about 10 percent of the total California rice acreage.

SOURCE: References 1,2,3,4.

Grand Prairie, Arkansas

The Grand Prairie region in east-central Arkansas is characterized by broad expanses of level to gently sloping land, with mostly loessial terrace soils (figure 1). Rice competes with soybeans for land and water. Of the estimated 533,000 acres of cropland in the area, about 430,000 are suitable for rice production. The total water supply, originally estimated to be capable of maintaining only about 200,000 acres of rice over a long period, may more nearly approach 300,000 acres, based on recent acreage history. In 1981, 329,000 acres were harvested from this region, about 173 percent of 1973. Any sustained acreage at or above this level, however, will continue to seriously affect the water supply for irrigation. In fact, the Grand Prairie has not expanded as rapidly as the adjacent northeast area, indicating that available irrigation water may be constraining growth. Yields declined as acreage expanded, causing increased per unit costs and lower net returns (tables 2 and 3).

Northeast Arkansas

This region is located between Crowley's Ridge on the east and the White and Black Rivers to the southwest and west and includes part of 15 counties (figure 1). A much wider range of soils occur here than in the Grand Prairie. Rice is grown on loessial terrace soils or on clay or mixed alluvial bottomland soils. Soybeans are the main rotation crop with rice. Of the estimated 1.8 million acres in cropland, 1.36 million are suitable for rice (table 1). As of 1975, no serious drawdown of underground water had been observed except in the extreme eastern side of this area. So at that time, the potential acreage was estimated at 668,000 acres, based primarily on rotation restraints (reference 2). In 1981, this area harvested 814,000 acres of rice, indicating, in the short-run, that rotational restraints were not as strong as expected earlier. However, as in the Grand Prairie yields have also declined, presenting similar problems. Further

expansion is possible, but could result in continued yield reductions and higher per-unit costs.

Mississippi River Delta

The Delta is the most extensive of the major rice-growing areas and includes parts of 38 counties in Arkansas, Louisiana, Mississippi, and Missouri (figure 1). Total cropland on farms suited for rice production was estimated at nearly 6.9 million acres (table 1). About 3.4 million acres, consisting of clay and mixed soil with impervious subsoils, are suited to rice. Soybeans are the main crop in rotation with rice. Irrigation water is supplied from shallow underground strata and from surface streams. Water does not appear to be a limiting resource.

The 924,000 acres harvested in 1981 were well below the estimated potential of 2.1 million, but nearly 5 times greater than in 1973. The slight rise in yields between 1972 and 1981 improved this region's relative net returns (tables 2 and 3). There is plenty of room for further expansion, but it could lead to similar yield and cost problems experienced in the Grand Prairie and northeast Arkansas.

Southwest Louisiana

Encompassing most of the eight parishes in the southwestern part of the State (figure 1), this area includes about 2.2 million acres of farm land, of which 1.8 million are cropland—all physically suited for producing rice (table 1). Sources of irrigation water are split about evenly between surface and groundwater. Some problems of salt water intrusion do occur during droughts. The 553,000 acres harvested in 1981 are 93 percent of that harvested in 1973 and 62 percent of the estimated potential. Restrictions from rotation or resources, such as land suitable for rice production or irrigation water, are not factors limiting expansion. A slight rise in yield between 1972 and 1981 improved net

Table 2—Costs and returns for rice

Regions	Total costs of production ¹				Returns above total cost			
	1972	1979	1980	1981	1972	1979	1980	1981
	<i>Dollars per cwt</i>							
Northeast Arkansas	3.51	9.41	11.48	11.58	3.69	1.19	.82	-.86
Grand Prairie, Arkansas	3.72	9.87	12.01	12.13	3.48	.72	.19	-1.41
Delta	3.80	10.10	12.36	12.46	3.20	.20	.34	-.97
Southwest Louisiana	3.62	9.38	11.60	11.42	2.78	1.22	.40	-.52
Upper Coast, Texas	5.11	11.91	14.32	13.67	1.33	-.31	-1.52	-1.80
Lower Coast, Texas	5.02	12.50	13.61	13.88	1.42	-.90	-.81	-2.01
Sacramento Valley, California	4.97	8.15	9.37	9.46	1.86	1.40	4.73	.90

¹Total cost includes allowance for variable, machinery ownership, land charge, general farm overhead, and management.

returns relative to other southern regions (tables 2 and 3). Average returns for 1979 to 1981 were also favorable compared with other parts of the South (table 2). However, acreage in this region still declined.

Coast Prairie, Texas

This region is located along the eastern Gulf Coast of Texas and encompasses all or parts of 17 counties (figure 1). The soils consist of dark-colored clay and clay loams near the coast marshes and light-colored loam and sand loams just north and west of the heavier soils. Beef cattle are the main competing enterprise with rice. However, soybeans are gaining in importance. Other alternative crops include sorghum and corn. Over 95 percent of the cropland in this area is suited to rice production (table 1). However, the amount of water available for irrigation limits rice acreage. It is estimated that around 600,000 acres of rice, or about one-fourth of the cropland, could be sustained over long periods. Because industrial and urban users are drawing heavily on the water supply, this area is near its maximum potential and may start to decline in future years. So, available irrigation water is the limiting factor. The 579,000 acres harvested in 1981 were 105 percent of 1973 and 97 percent of the potential. Because of differences in production costs, the Coast Prairie may be broken into its upper and lower coast counties to more accurately examine net returns. The two Texas regions have the lowest net returns, but they have made relative gains over some southern areas since 1972 (table 2).

Sacramento Valley, California

This region includes parts of eight counties located in the northern part of the large Central Interior Valley (figure 1). The potential rice-producing farmers in these counties have about 660,000 acres of cropland suited for rice (table 1). Rice is grown mainly in rotation with small grains, soybeans, or safflowers. However, rotation restrictions are not as limiting here as in other areas. Runoff water from winter rains and snow is stored for summer irrigation. Variations in the runoff stored affect the potential production for the year. Estimated potential rice acreage is about 500,000, or about three-fourths of the cropland in the Sacramento Valley. However, droughts during the 1976 and 1977 crop years pushed rice acreage well below this level. The 1981 expansion of total California rice plantings to 605,000 acres pushes

Table 3—Estimated yields per acre

Regions	Year			
	1972	1979	1980	1981
	<i>cwt</i>			
Northeast Arkansas	52.00	42.50	40.72	45.50
Grand Prairie, Arkansas	51.00	44.70	42.96	48.12
Delta	45.60	41.10	36.75	41.51
Southwest Louisiana	38.30	38.30	34.23	40.15
Upper Coast, Texas	43.90	40.50	37.28	45.54
Lower Coast, Texas	50.60	44.00	46.95	52.00
Sacramento Valley, California	56.20	64.80	63.95	70.40

the upper limits of the estimated potential. (About a tenth of the California rice crop is grown in the San Joaquin Valley. The potential acreage estimates do not include a figure for this area.) In terms of net returns, this region shifted from being at comparative disadvantage to most regions in 1972 to gaining a strong comparative advantage in 1981 (table 2), with higher yields causing most of the gain (table 3).

Regional Comparisons

Irrigation water restraints are affecting acreage expansion in the Coast Prairie, Texas, and the Sacramento Valley, California. To a lesser extent, limited irrigation water also appears to have dampened expansion in the Grand Prairie.

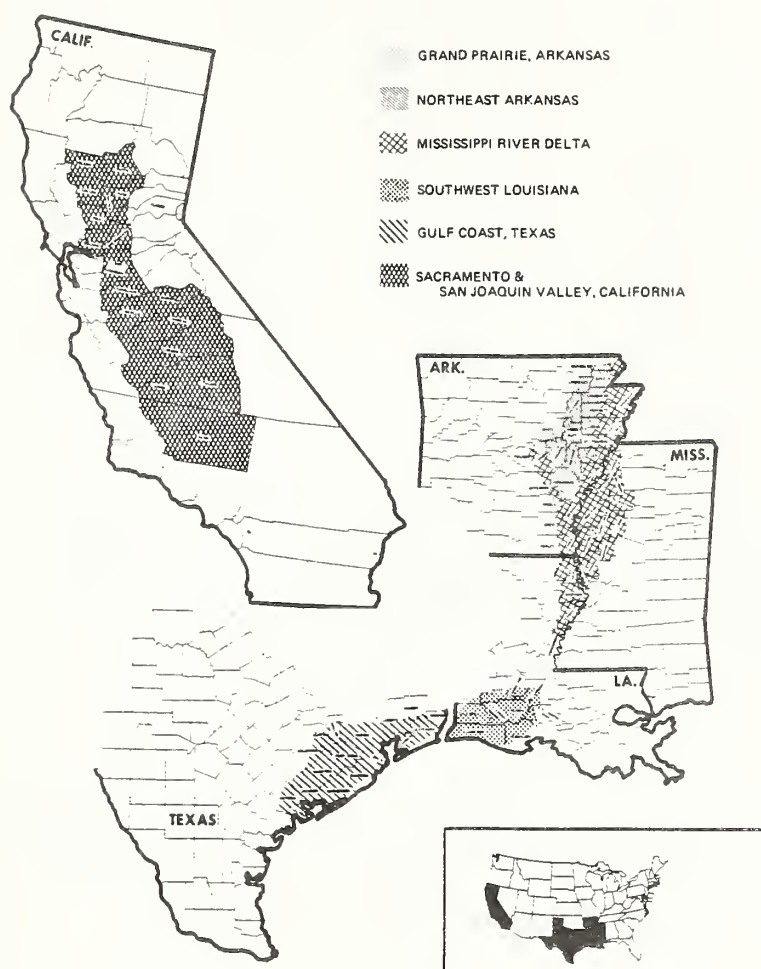
Producers in northeast Arkansas, the Grand Prairie, and the Delta had the competitive advantage over all areas in 1972. So, they sharply increased rice acreage through 1981. However, the larger acreages affected yields, lowering the relative advantage over other areas. Meanwhile, California producers, shifting from a position of competitive disadvantage to one of advantage over all areas, sharply increased rice acreage following the 1976-77 droughts.

Net returns were positive in all areas in 1972 but were highest in the Arkansas and Delta areas. During 1979 to 1981, northeast Arkansas and southwest Louisiana averaged slightly above breakeven, while the Grand Prairie and Delta were slightly below. Both the upper and lower coast of the Texas area were well below the breakeven point. California returns, with a highly favorable price in 1980 and a good yield in 1981, averaged well above the

cost of production. The negative return in Texas indicates the possibility of adjustments. Adjustments may

be in the form of reduced acreage or a shift to more efficient and larger producers.

FIGURE 1. MAJOR U.S. RICE AREAS



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Table 2--Rough rice: Marketing year supply and disappearance 1/

Item	Year beginning August			August-December	
	1978	1979	1980 <u>2/</u>	1980 <u>2/</u>	1981 <u>2/</u>
1,000 cwt.					
Beginning stocks	21,128	25,138	20,093	20,093	9,840
Farm production	133,170	131,947	146,150	146,150	185,370
Supply	154,298	157,085	166,243	166,243	195,210
Mill use	117,961	124,340	141,192	59,937	57,197
Seed	4,300	4,800	5,100	---	---
Exports	2,773	1,670	414	166	3,812
Disappearance	125,034	130,810	146,706	60,103	61,009
Unaccounted for <u>3/</u>	+4,126	+6,182	+9,697	+10,027	+3,726
Ending stocks, July 31	25,138	20,093	9,840	96,113	130,475

1/ Includes supply and disappearance of rough rice only. 2/Preliminary. 3/Results from drying, storage, handling, milling losses, and statistical error.

Table 3--Milled rice: Marketing year supply and disappearance 1/

Item	Year beginning August			August-December	
	1978	1979	1980 <u>2/</u>	1980 <u>2/</u>	1981 <u>2/</u>
1,000 cwt.					
Beginning stocks	4,347	4,583	4,035	4,035	4,855
Production	83,427	89,820	103,037	43,271	41,060
Imports	49	45	160	50	73
Supply	87,823	94,448	107,232	47,356	45,988
Food <u>3/</u>	23,763	23,868	27,957	12,272	14,321
Brewers use	7,872	8,093	8,001	3,232	3,442
Exports	51,605	58,452	66,419	25,312	22,260
Disappearance	83,240	90,413	102,377	40,816	40,023
Ending stocks, July 31	4,583	4,035	4,855	6,540	5,965

1/ Includes supply and disappearance of milled rice only. 2/Preliminary. 3/Includes military and shipments to territories.

Table 4--Rice acreage, yield, and production, by type and State

Type and State	Area planted		Area harvested		Yield		Production	
	1981	1982 <u>1/</u>	1980	1981	1980	1981	1980	1981
	<u>1,000 acres</u>		<u>1,000 acres</u>		<u>pounds</u>		<u>1,000 cwt</u>	
Long grain								
Ark.	1,297.0	1,159.0	1,062.0	1,283.0	4,000	4,450	42,480	57,094
La.	290.0	325.0	250.0	289.0	3,550	4,025	8,875	11,632
Miss.	330.0	285.0	236.0	328.0	3,850	4,400	9,086	14,432
Mo.	68.0	78.0	50.0	67.0	4,200	4,100	2,100	2,747
Tex.	536.0	525.0	572.0	535.0	4,250	4,750	24,310	25,413
U.S.	2,521.0	2,372.0	2,170.0	2,502.0	4,002	4,449	86,851	111,318
Medium grain								
Ark.	235.0	206.0	194.0	230.0	4,675	4,975	9,073	11,443
Calif.	475.0	500.0	452.0	466.0	6,550	7,185	29,606	33,482
La.	380.0	345.0	335.0	378.0	3,550	4,000	11,893	15,120
Miss.	10.0	5.0	4.0	9.0	3,500	4,000	140	360
Mo.	8.2	7.4	4.6	8.2	4,150	3,900	191	320
Tex.	44.0	35.0	14.0	44.0	36	4,150	504	1,826
U.S.	1,152.2	1,098.4	1,003.6	1,135.2	5,122	5,510	51,407	62,551
Short grain								
Ark.	28.0	35.0	24.0	27.0	4,425	5,150	1,062	1,391
Calif.	140.0	115.0	113.0	139.0	6,000	7,250	6,780	10,078
Mo.	0.8	0.6	1.4	0.8	3,575	4,000	50	32
Tex.	--	--	--	--	--	--	--	--
U.S.	168.8	150.6	138.4	166.8	5,7	6,895	7,892	11,501
All Rice								
Ark.	1,560.0	1,400.0	1,280.0	1,540.0	4,110	4,540	52,615	69,928
Calif.	615.0	615.0	565.0	605.0	6,440	7,200	36,386	43,560
La.	670.0	670.0	585.0	667.0	3,550	4,010	20,768	26,752
Miss.	340.0	290.0	240.0	337.0	3,840	4,390	9,226	14,792
Mo.	77.0	86.0	56.0	76.0	4,180	4,080	2,341	3,099
Tex.	580.0	560.0	586.0	579.0	4,230	4,700	24,814	27,239
U.S.	3,842.0	3,621.0	3,312.0	3,804.0	4,413	4,873	146,150	185,370

1/ Intended plantings in 1982 as indicated by reports from farmers.

Source: Crop Reporting Board, SRS.

Table 5--Rice stocks: Rough and milled, for selected dates 1/

Date and year	Rough					Milled			
	On farms or in farm ware-houses	At mills and in attached ware-houses	In ware-houses (not attached to mills)	In ports or in transit	Total all positions	At mills and in attached ware-houses	In ware-houses (not attached to mills)	In ports or in transit	Total all positions
1,000 cwt.									
January 1									
1978	8,269	15,930	51,984	899	77,082	2,895	503	3,046	6,444
1979	28,089	16,829	50,100	899	95,917	3,517	542	2,080	6,139
1980	31,021	15,038	57,278	581	103,918	3,137	810	2,123	6,070
1981 2/	26,179	21,111	48,817	6	96,113	3,055	929	2,556	6,540
1982 2/	48,404	22,952	59,117	2	130,475	2,735	907	2,323	5,965
April 1									
1978	3,157	14,323	34,675	900	53,055	3,611	994	2,861	7,466
1979	14,381	18,158	34,161	820	67,520	3,979	282	2,444	6,705
1980 2/	12,030	15,581	39,224	563	67,398	3,500	402	2,888	6,790
1981 2/	5,977	15,078	28,673	64	49,792	3,499	1,099	3,214	7,812
1982									
August 1									
1978	586	6,288	13,411	843	21,128	3,118	221	1,008	4,347
1979	623	8,781	15,033	701	25,138	2,531	374	1,678	4,583
1980 2/	563	9,248	9,940	342	20,093	2,128	403	1,504	4,035
1981 2/	208	5,417	4,206	9	9,840	2,744	446	1,665	4,855
1982									

1/These estimates do not include stocks located in States outside the major producing States of Missouri, Mississippi, Arkansas, Louisiana, Texas, and California. 2/Preliminary.

Source: Rice Stocks, Crop Reporting Board, USDA.

Table 6--Rice, rough: Price support activity by States, 1981, crop as of March 10, 1982

State	Placed under Loan			Loans redeemed	Loans outstanding
	Farms	Warehouses	Total		
1,000 cwt					
Arkansas	1,902	5,509	7,411	1,457	5,954
Louisiana	1,965	730	2,695	166	2,529
Texas	1,315	7,913	9,228	3,895	5,333
Mississippi	726	56	782	99	683
Missouri	4	--	4	--	4
South	5,912	14,208	20,120	5,617	14,503
California	71	17,046	17,117	6,755	10,362
United States	5,983	31,254	37,237	12,372	24,865

SOURCE: Agricultural Stabilization and Conservation Service, USDA.

Table 7--Rough rice: Average price received by farmers, by States and United States

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Season average <u>1/</u>
<u>Dollars per cwt.</u>													
<u>Arkansas</u>													
1978 <u>2/</u>													8.47
1979 <u>2/</u>	9.21	9.92	9.97	9.92	9.37	9.95	11.10	11.60	11.50	11.00	10.60	10.50	10.60
1980	9.74	9.70	10.30	11.40	12.70	12.90	12.50	13.20	14.10	13.10	12.40	12.20	12.30
1981 <u>3/</u>	11.90	10.30	9.95	9.67	9.34	9.27	N.A.						
<u>Louisiana</u>													
1978 <u>2/</u>													7.50
1979 <u>2/</u>	9.97	9.77	10.20	10.40	9.71	9.93	11.10	11.90	12.00	11.90	11.30	11.10	10.60
1980	10.10	9.76	10.40	11.10	13.10	13.90	14.00	14.10	14.30	13.90	<u>4/</u>	12.10	12.00
1981 <u>3/</u>	11.60	10.80	10.30	9.61	9.24	8.74	N.A.						
<u>Mississippi</u>													
1978 <u>2/</u>													7.98
1979 <u>2/</u>	6.89	10.50	10.50	9.31	8.92	9.49	11.30	11.30	10.90	<u>4/</u>	10.80	10.50	10.30
1980	10.30	10.40	11.60	12.20	13.40	13.70	11.80	13.60	13.70	<u>4/</u>	<u>4/</u>	<u>4/</u>	12.70
1981 <u>3/</u>	<u>4/</u>	10.90	11.00	10.80	9.93	9.10	N.A.						
<u>Texas</u>													
1978 <u>2/</u>													9.27
1979 <u>2/</u>	10.30	11.00	11.40	11.30	11.10	12.40	12.00	11.90	12.10	11.10	10.50	11.00	11.60
1980	11.20	11.50	12.30	13.30	13.90	13.60	13.90	14.10	14.20	13.80	12.60	13.60	12.80
1981 <u>3/</u>	12.80	11.90	10.90	10.10	9.83	9.27	N.A.						
<u>United States <u>5/</u></u>													
1978 <u>2/</u>	8.44	7.56	7.62	7.76	7.98	8.07	7.87	8.18	8.52	8.74	8.73	9.10	8.16
1979 <u>2/</u>	10.00	9.81	10.30	9.83	9.41	9.88	11.00	11.70	11.60	11.30	10.20	10.80	10.50
1980	10.60	10.20	10.90	11.60	13.10	13.20	13.00	13.40	13.80	13.30	11.90	12.80	12.80
1981 <u>3/</u>	11.80	10.70	10.20	9.86	9.34	9.34	*9.51						

1/ State and U.S. season average prices include an allowance for unredeemed loans and purchases by the Government, valued at the average loan rate, by States. Monthly prices do not include this allowance.

2/ Discontinued reporting monthly prices by State.

3/ Preliminary

4/ Not published separately to avoid disclosure of individual operations.

5/ California is excluded in the monthly averages but is included in the U.S. season average.

* Mid-month. N.A. -- Not available.

Source: Agricultural prices, Crop Reporting Board, SRS, USDA.

Table 8--Milled rice: Average price for U.S. No. 2, f.o.b. mills, at selected milling centers

Year and type	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
<u>Dollars per cwt. bagged</u>													
<u>Southwest Louisiana</u>													
Long 1/													
1979	21.50	21.50	22.05	22.50	21.00	20.60	22.50	24.30	24.00	23.25	21.80	20.90	22.15
1980	20.75	22.00	23.40	25.00	26.75	27.00	27.25	27.70	28.25	28.00	27.90	27.50	25.95
1981 2/	26.40	24.30	23.25	21.90	20.75	19.80	18.60						
<u>Houston, Texas</u>													
1979	21.10	21.25	22.30	22.10	21.10	20.10	22.75	24.80	24.10	23.00	21.00	21.00	22.05
1980	21.00	21.70	23.10	24.75	26.55	26.55	25.75	27.10	27.75	28.00	27.40	27.00	25.55
1981 2/	25.00	24.85	23.50	22.60	22.00	21.75	20.20						
<u>Arkansas</u>													
1979	21.50	23.50	24.00	23.00	21.35	20.10	22.40	24.00	23.75	22.25	21.50	20.50	22.30
1980	20.60	22.00	23.40	24.90	26.10	26.10	25.75	26.70	27.50	28.00	27.90	27.50	25.55
1981 2/	26.40	24.30	23.05	22.30	20.85	19.60	19.00						
<u>Southwest Louisiana</u>													
Medium 1/													
1979	19.40	20.00	20.40	20.50	19.60	20.00	22.60	23.80	24.00	23.60	21.80	20.90	21.40
1980	20.50	20.80	21.60	24.40	26.40	27.00	27.10	27.50	27.55	28.00	28.00	27.75	25.55
1981 2/	26.40	24.20	22.90	21.15	20.00	18.75	17.75						
<u>Houston, Texas</u>													
1979	18.65	19.10	20.50	20.60	20.50	21.00	22.40	24.50	24.10	23.00	21.00	21.00	21.35
1980	21.00	21.00	21.00	N.Q.	N.Q.	N.Q.	N.Q.	N.Q.	N.Q.	N.Q.	N.Q.	N.Q.	21.00
1981 2/	N.Q.	N.Q.	N.Q.	N.Q.	N.Q.	N.Q.	N.Q.						
<u>Arkansas</u>													
1979	19.50	22.25	22.50	22.40	21.50	21.40	22.60	24.00	23.90	22.25	21.55	20.50	22.05
1980	20.60	21.30	22.50	24.00	25.75	26.10	25.75	26.70	27.40	28.00	28.00	27.50	25.30
1981 2/	26.40	24.10	22.95	21.30	19.85	18.60	17.90						
<u>California</u>													
Medium 3/													
1979	22.50	23.00	23.00	23.00	23.00	23.00	25.10	24.70	23.00	23.00	23.00	23.00	23.30
1980	23.00	23.20	24.75	25.00	26.75	30.00	30.00	30.00	30.00	30.00	30.00	30.00	27.70
1981 2/	30.00	27.60	24.50	22.80	21.40	20.50	19.10						
Short 3/													
1979	20.50	21.00	21.00	21.00	21.00	21.00	23.00	23.00	23.00	23.00	23.00	23.00	21.95
1980	23.00	23.20	24.75	25.00	26.75	30.00	30.00	30.00	30.00	30.00	30.00	30.00	27.70
1981 2/	30.00	28.25	25.75	23.90	22.00	22.00	20.25						

1/ U.S. No. 2--brokens not to exceed 4 percent. 2/ Preliminary. 3/ U.S. No. 1. N.Q. - No Quote.

Source: Rice Market News, Agricultural Marketing Service, USDA.

Table 9--Rice by-products: Monthly average price, at Southwest Louisiana

Year and type	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
<u>Dollars per cwt., bagged 1/</u>													
Milled, long Second head													
1979	8.25	8.45	9.00	9.50	9.50	10.10	11.00	11.90	12.50	12.50	12.50	12.25	10.60
1980	11.05	10.70	11.00	11.15	12.45	12.90	12.75	13.55	13.40	14.45	14.55	14.10	12.65
1981	13.00	11.90	11.00	11.00	11.00	10.60	10.00						
<u>Dollars, per ton 2/</u>													
Rice bran, f.o.b. mills													
1979	58.00	61.50	79.80	85.90	88.85	94.15	60.75	51.60	52.00	62.75	65.50	66.75	68.95
1980	76.90	84.70	86.40	95.50	N.Q.	101.90	73.60	59.10	57.50	60.00	71.60	69.15	76.05
1981	51.50	49.60	52.75	59.90	73.65	82.50	63.25						
<u>Dollars, per ton 2/</u>													
Rice mill feed, f.o.b. mills													
1979	20.35	19.25	25.90	30.25	40.65	45.65	18.15	13.50	11.00	11.25	11.10	15.25	21.85
1980	29.50	37.40	35.00	36.90	48.40	54.00	15.00	11.00	14.95	17.00	27.00	31.40	29.80
1981	22.60	10.90	17.75	22.00	30.65	29.75	16.50						

1/ U.S. No. 4 or better. 2/ Prices quoted as bulk. N.Q. - Not Quoted.

Source: Rice Market News, Agricultural Marketing Service, USDA.

Table 10--Brewers prices: Monthly average price for Arkansas brewers rice and New York brewers corn grits

Year and State	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Simple average
<u>Dollars per cwt.</u>													
Arkansas													
1979/80	7.05	7.30	7.90	8.25	8.50	9.00	9.40	9.65	9.75	9.75	9.75	9.75	8.85
1980/81	9.75	9.75	9.80	10.10	10.00	10.00	10.00	10.00	10.00	10.00	9.60	9.50	9.90
1981/82	9.30	9.00	8.55	8.25	8.25	8.20	7.60						
New York													
1979/80	N.Q.	9.65	9.89	9.69	9.99	9.90	10.10	10.05	10.10	10.24	10.27	11.20	10.10
1980/81	11.60	12.11	12.26	12.74	12.42	12.44	12.60	12.64	12.72	12.42	12.57	12.85	12.45
1981/82	12.22	10.45	10.16	9.96	9.97	9.97	10.28						

N.Q. - Not Quoted.

Source: Rice Market News, Agricultural Marketing Service, USDA, and Milling and Baking News magazine.

Table 11--World rice production and stocks: Selected countries or regions ^{1/}

Country or region	Crop year ^{2/}				1981/82 as of Mar. 15
	1977/78	1978/79	1979/80	1980/81	
	<u>Million metric tons</u>				
Bangladesh	19.5	19.3	19.1	20.8	20.1
Burma	9.3	10.6	9.7	13.0	13.6
China, Mainl.	128.5	137.0	143.7	139.3	144.0
India	79.1	80.7	63.6	79.9	79.6
Indonesia	23.3	25.8	26.3	29.8	32.6
Japan	16.4	15.7	14.9	12.2	12.8
Korea, Rep. of	8.3	7.6	7.1	6.2	7.0
Pakistan	4.4	4.9	4.8	4.6	4.9
Thailand	15.0	17.5	15.8	18.5	19.5
Vietnam	11.3	10.0	10.7	10.0	10.5
Subtotal	315.1	329.1	315.8	334.2	344.7
Argentina	0.3	0.3	0.3	0.3	0.3
Australia	0.5	0.7	0.6	0.8	0.8
Brazil	7.5	7.6	9.6	8.6	8.7
EC-10	0.7	1.0	1.1	1.0	0.9
All others	41.5	40.6	43.5	44.3	46.0
Total non-U.S.	365.6	379.3	371.0	389.2	401.4
U.S.	4.5	6.0	6.0	6.6	8.4
World total	370.1	385.3	377.0	395.8	409.8
Ending stocks ^{3/}					
Non-U.S.	22.9	27.5	24.0	24.0	23.4
U.S.	0.9	1.0	0.8	0.5	1.7
World total	23.8	28.6	24.8	24.6	25.1

^{1/}Production is rough basis, but ending stocks are milled basis. ^{2/}World rice harvest stretches over 6-8 months. Thus, for example, crop year represents the crop harvested in late 1978 and early 1979 in the Northern Hemisphere and the crop harvested in early 1979 in the Southern Hemisphere. ^{3/}Stocks are based on an aggregate of different local marketing years, and should not be construed as representing world stock levels at a fixed point in time. Also, stocks data are not available for all countries.

Source: World Grain Situation, Foreign Agricultural Service, USDA.

Table 12--World rice trade (milled basis): Exports and imports of selected countries or regions 1/

Country or region	Calendar year				
	1978	1979	1980	1981	1982 as of Mar. 15
	<u>1,000 metric tons</u>				
EXPORTS					
United States	2,264	2,267	2,977	3,008	3,000
Guyana	106	85	81	80	80
Uruguay	100	115	165	220	200
Argentina	118	95	107	110	75
Egypt	150	95	178	134	25
EC-10	670	737	836	794	731
India	145	375	425	900	600
Pakistan	703	1,366	968	1,100	1,000
Nepal	85	100	10	75	75
Burma	375	590	675	750	700
Thailand	1,573	2,696	2,700	3,049	3,000
China, Mainland	1,373	1,095	1,000	600	700
Philippines	49	127	231	93	0
North Korea	402	224	274	300	300
China, Taiwan	238	409	261	92	200
Japan	75	564	653	776	400
Australia	337	400	321	425	425
Other	650	326	634	490	529
WORLD TRADE	9,413	11,666	12,496	12,996	12,040
IMPORTS					
Canda	89	90	98	100	103
Mexico	15	34	128	70	25
South Africa	92	121	112	115	125
Malagasy	136	175	177	193	275
Ivory Coast	142	218	259	350	350
Mauritius	86	75	68	75	86
Nigeria	564	241	387	658	600
Senegal	228	259	266	325	350
South Korea	0	355	757	2,212	500
Indonesia	1,824	1,934	2,040	543	500
Malaysia	415	233	173	235	375
Laos	94	70	53	50	50
Soc. Rep. Viet Nam	150	250	127	100	75
Sri. Lanka	161	211	189	175	250
Hong Kong	343	361	359	360	360
Singapore	194	214	187	200	220
Bangladesh	18	602	191	75	250
Yemen, Sana	72	105	110	112	120
Saudi, Arabia	404	496	475	500	500
U. A. Emirates	145	175	350	225	250
Iran	320	371	500	600	600
Iraq	290	300	379	350	425
Kuwait	85	90	100	100	110
USSR	414	631	694	1,000	1,000
Portugal	45	75	20	110	100
EC-10	1,040	957	919	1,269	1,077
East Europe	285	321	320	343	341
Brazil	29	711	239	20	250
Peru	0	150	251	103	70
Cuba	171	161	200	200	200
Other	1,562	1,680	2,368	2,228	2,503
WORLD TRADE	9,413	11,666	12,496	12,996	12,040

Source: World Grain Situation, Foreign Agriculture Service, USDA.

Table 13--U.S. milled rice exports by type of sale

Fiscal Year	Commercial	Under government programs				Total exports
		Title I <u>1/</u>	Title II <u>2/</u>	Aid <u>3/</u>	Total <u>4/</u>	
<u>1,000 metric tons</u>						
1977 <u>6/</u>	1,571	661	25	<u>5/</u>	686	2,257
1978	1,665	466	64	--	530	2,195
1979	1,849	416	68	--	484	2,333
1980	2,319	403	135	--	539	2,858
1981 Prel.	2,997	242	71	--	313	3,310

1/ Includes local currency, convertible local currency, dollar credit, and private trade. 2/ Includes Government-to-Government, world food, and voluntary relief. 3/ Mutual Security Aid. 4/ Total may not add due to rounding. 5/ Less than 500 metric tons. 6/ Fiscal year has been changed from July-June to October-September.

Source: Office of the General Sales Manager, USDA.

Table 14--U.S. milled rice exports under Government Programs, by country of destination

Country of destination	Fiscal year <u>1/</u>				
	1977	1978	1979	1980	1981 <u>2/</u>
1,000 metric tons					
Guinea	13	23	8	12	18
Honduras	<u>3/</u>	--	--	1	1
India	<u>3</u>	4	--	0	--
Indonesia	374	383	246	238	100
Khmer (Cambodia)	--	--	--	55	27
Korea, Rep. of	61	--	--	0	--
Liberia	<u>3/</u>	--	--	7	29
Peru.	--	--	71	53	47
Portugal	64	--	14	0	--
Syria	35	21	35	0	--
Tanzania	18	20	--	12	--
Relief of Dacca (Bangladesh)	64	20	2	0	--
Zaire	3	12	19	28	4
Other	51	47	89	133	87
Total <u>4/</u>	686	530	484	539	313

1/ Fiscal year has been changed from July-June to October-September. 2/ Preliminary. 3/ Less than 500 metric tons. 4/ Total may not add due to rounding.

Table 15--Thailand milled rice prices, f.o.b. Bangkok, by month 1/

Type and month	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82
<u>Dollars per metric ton</u>						
100% 1st grade						
August	270	306	396	378	463	528
September	295	306	399	390	463	517
October	300	306	390	392	463	485
November	290	321	345	394	484	458
December	290	352	324	409	491	409
January	287	368	329	425	491	378
February	284	402	330	428	501	364
March	291	425	344	443	529	
April	284	440	346	447	540	
May	289	438	348	459	544	
June	292	432	352	463	560	
July	300	414	355	463	551	
Average	289	376	355	424	507	
100% 2nd grade						
August	259	290	381	363	450	508
September	280	290	384	375	450	497
October	285	291	375	377	450	465
November	275	307	330	382	471	438
December	275	338	309	394	478	389
January	272	352	314	410	478	352
February	270	388	315	413	488	332
March	275	410	329	428	514	
April	267	425	331	432	525	
May	273	423	333	444	529	
June	280	418	337	450	545	
July	285	399	340	450	533	
Average	275	361	340	410	493	
5% broken						
August	243	275	366	349	442	498
September	266	275	369	360	442	487
October	270	278	360	362	442	455
November	259	294	315	364	463	428
December	258	324	294	379	470	379
January	259	338	299	395	470	342
February	257	374	300	399	480	324
March	261	396	314	415	505	
April	252	411	316	419	515	
May	257	409	318	433	519	
June	264	404	324	442	535	
July	272	384	327	442	523	
Average	260	347	325	397	484	

1/ Includes export premium, export tax and cost of bags. Packed in bags of 100 kgs. net.

Source: Rice Market News, Agricultural Marketing Service, USDA.

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